



GROUP ON  
EARTH OBSERVATIONS

## GEO-VIII

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Report of the Science and Technology Committee (STC)

Document 17

*The Plenary is invited to take note of this document, including the four recommendations made by the Science and Technology Committee*

This document is submitted to GEO-VIII for information.



## Report of the Science and Technology Committee (STC)

### 1 IMPLEMENTATION OF THE SCIENCE AND TECHNOLOGY ROADMAP

At its 6<sup>th</sup> Plenary session (GEO-VI, Washington D.C.) the Group on Earth Observation (GEO) accepted the Science and Technology (S&T) Roadmap as the basis for achieving the objectives defined for the scientific and technological targets defined in the 10 year implementation plan and the GEO Rules of Procedure (Washington D.C., November 2008). The STC has been overseeing and advising activities implementing this Roadmap. Much of the work has been taken up by Tasks ST-09-01 (“Catalyzing research and development funding for GEOSS”) and ST-09-02 (“Promoting awareness and benefits of GEO”) in the GEO Work Plan 2009-2011.

The STC reviewed the S&T Roadmap following acceptance of the GEO Strategic Targets by GEO at its 6<sup>th</sup> Plenary session (GEO-VII, Plenary) and confirmed that it addressed the target on Science and Technology fully. The review led to minor adjustments primarily in response to progress made towards the implementation. Also, a second annex was added that maps the activities in the Roadmap to the GEO Strategic Targets.

The current version of the S&T Roadmap is available on the GEO Website<sup>1</sup>.

In view of the preparation of the new GEO Work Plan 2012-2015 and the Work Plan management the STC stresses the need to transition responsibility for overseeing the implementation of the GEO S&T Roadmap to the new management structures.

STC recommends that:

**Plenary agrees on the need to include the responsibility for overseeing the implementation of the GEO S&T Roadmap in the Terms of Reference of the appropriate body under the new Work Plan management<sup>2</sup>.**

The Roadmap activities on the development of a GEO Label and a GEO Citation Standard are reported on in the following sections.

#### 1.1 Scientific review of the GEO Work Plan

The European Space Agency, in contribution to Task ST-09-01 led a scientific review of the GEO Work Plan 2009-2011. The review involved a panel of scientists. The result of this review was the report “GEO and Science”<sup>3</sup>. The report recommended how the Work Plan might be modified to better support S&T activities and where existing S&T activities could contribute to existing Tasks. STC submitted this report to the GEO Secretariat to support the development of the new Work Plan.

STC recommends that the GEO Work Plan 2012-2015 is also reviewed for scientific soundness following its acceptance at the 8<sup>th</sup> Plenary session (November 2011). The STC is developing a concept

<sup>1</sup> [http://www.earthobservations.org/ag\\_stc.shtml](http://www.earthobservations.org/ag_stc.shtml)

<sup>2</sup> Under the Work Plan management proposed in the Draft GEO Work Plan 2012-2014, Version 1, such oversight should be conducted by the Task Team of Task ID-03, with Terms of Reference being drawn from the language of the Science and Technology Task.

<sup>3</sup> [http://www.earthobservations.org/documents/committees/stc/20100923\\_geo\\_and\\_science.pdf](http://www.earthobservations.org/documents/committees/stc/20100923_geo_and_science.pdf)

paper for this review by the end of 2011 and is seeking limited resources to support this review. The intent is to complete the review and present a report with specific recommendations to inform the update of the GEO Work Plan in 2012.

## 1.2 Developing a GEOSS Citation Standard

The GEO S&T Roadmap includes an activity to develop a GEOSS Citation Standard. The ultimate goal is to promote a culture of data citation to

- Recognize the contributions of data providers; and
- Establish transparency of sources that feed a particular product, service or result.

Several initiatives and organizations recognize the importance of data citation. For example, the International Polar Year (IPY) has published guidance on the issue<sup>4</sup>, the Earth Science Information Partner (ESIP) Federation is planning to adopt citation guidelines in 2012 and DataCite<sup>5</sup> are promoting the issue. The International Council of Science (ICSU) is working to establish a standard for all kinds of information, including geographically referenced datasets. Also, scientific publishers are increasingly encouraging data citation. However, there are complicated technical questions related to citing data and no standard for citing data has emerged, yet. Task ST-09-02, with contributions from these other initiatives, has been developing a proposal for citing data within the GEOSS Common Infrastructure (GCI).

STC recommends that:

**GEO clearly positions itself to call for full recognition of data sources used in scientific investigations and any applications and services building significantly on these sources.**

**The GEO Plenary agrees on a position statement on the issue of data citation.**

STC proposes a position statement for acceptance by Plenary as a clear and unambiguous articulation of GEO's encouragement of data citation in the annex to this report.

## 1.3 Development of a GEO Label

The STC has been overseeing progress of Task ST-09-02 towards developing a GEO Label. This label would provide: 1) valuable information to users of GEOSS (to help judging quality and reliability of GEOSS components and services); and 2) an incentive for GEOSS providers to register their services and data. Importantly, the GEO Label would indicate recognition by GEO, not attribution to GEO. Its use by contributors would be fully voluntary.

Conceptual work is now in an advanced stage and some test implementations are planned for 2012.

## 1.4 Showing GEOSS at work

The STC aims to ensure engagement of scientific and technological communities in GEOSS development and use. To support outreach to scientists and engineers Task ST-09-02 has compiled a set of examples that demonstrate how GEOSS is supporting applications in science and technology<sup>6</sup>. Further examples are being developed and existing examples updated. The STC encourages Members and Participating Organizations to propose additional examples and to use the available examples for their own outreach activities.

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<sup>4</sup> <http://ipydis.org/data/citations.html>

<sup>5</sup> <http://datacite.org>

<sup>6</sup> Available at [http://www.geo-tasks.org/geoss\\_portfolio/](http://www.geo-tasks.org/geoss_portfolio/)

### 1.5 Catalyzing research and development funding

The S&T Roadmap aims at establishing explicit links between relevant research and development programmes of Members and Participating Organizations and GEOSS. Task ST-09-01 has engaged representatives of the “Belmont Forum”, the Council of Principles for the International Group of Funding Agencies for Global Change Research (IGFA) and to the Organisation for Economic Co-operation and Development (OECD). As a next step these organizations and GEO need to agree how the relevant funding programmes can effectively support research and development in support of GEOSS.

## 2 REVIEW OF WORK PLAN TASKS IN SOCIETAL BENEFIT AREAS

For several years now the STC has considered the activities of Tasks in several SBA domains. The intention was to provide the Tasks an opportunity to identify specific scientific or technical issues that STC could take action to help addressing. Over several meetings (sub-) Tasks were reviewed in the SBAs Health (Nov. 2009), Disasters (Mar, 2010), Water (May 2010), Biodiversity and Ecosystems (Sep. 2010), and Agriculture (Apr. 2011). These reviews identified a number of fundamental issues particularly in the domains of work plan management, Task-level coordination, and resources. These findings have contributed to and informed the discussion around the development of a new Work Plan management in the GEO Work Plan 2012-2015.

The STC recognizes the value that these reviews have had. However, due to the process adopted for the review and the management issues mentioned these reviews have not been able to achieve their original intention.

The STC recommends that:

**Plenary recognizes the need for a process that allows Components in the Tasks of the GEO Work Plan to raise science or technological barriers to a higher level of visibility and identifies the responsible body in GEO<sup>7</sup>.**

Depending on the outcome of the Plenary discussion on the future Work Plan management and Committee structure the responsible body could be the STC, a management board or any other successor body of STC.

## 3 DEVELOPMENT OF A GEOSS GAP ANALYSIS STRATEGY

The STC had proposed a “Earth Observation Capacity Assessment” aimed at a comprehensive analysis of our global Earth observing capability to support key decisions at a global level in 2010. Following advice of the Executive Committee a Gap Analysis Working Group with membership from the STC and the Monitoring and Evaluation (M&E) Working group developed this proposal into a draft GEOSS Gap Analysis strategy. The Executive Committee, at its 22<sup>nd</sup> meeting, decided that this strategy could not currently be resourced and suggested continuing considerations on gap analysis in the context of preparing GEO for the time after 2015.

The STC stresses that identifying and agreeing on observational gaps is of fundamental importance to achieve the objectives of GEO.

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<sup>7</sup> Under the Work Plan management proposed in the Draft GEO Work Plan 2012-2014, Version 1, a possible process might be through reports of the Task Coordinator to the appropriate Implementation Board.

The STC therefore recommends that:

**Plenary task the Post-2015 Working Group, or another group with a similar mandate, with preparing a decision by GEO on what gap analyses are needed for informing the future development of GEO. The findings of the Gap Analysis Working Group would inform this decision.**

## **Position Statement on Data Citation**

*for acceptance by the Group on Earth Observations at its 8<sup>th</sup> Plenary session (November 2011)*

The Group on Earth Observations:

- recognizes the importance of citing the source of data in publications, derived products and services;
- recognizes that data citation is a critical acknowledgement for data providers and creates an important incentive for the publication, documentation, registering and provision of data.; and
- particularly encourages users of the GEOSS Common Infrastructure to cite data found or accessed through the GEOSS Common Infrastructure.